

The rate at which a pump operates is recorded every 5 minutes for 1 hour. How many gallons were pumped during that hour?

min	gallons	min	gallons
0	58	35	55
5	60	40	59
10	65	45	60
15	64	50	60
20	58	55	63
25	57	60	63
30	55		

Trapezoid 3582

Simpsons 3585

From 1970 to 1980, the rate of potato consumption in a particular country was  $C(t) = 2.2 + 1.1^t$  millions of bushels per year, with  $t$  being years since the beginning of 1970.

How many bushels were consumed from the beginning of 1972 to the end of 1973?

$$\int_2^4 (2.2 + 1.1^t) dt$$

$$F(x) = 2.2t + \frac{1.1^t}{\ln(1.1)} \Big|_2^4$$

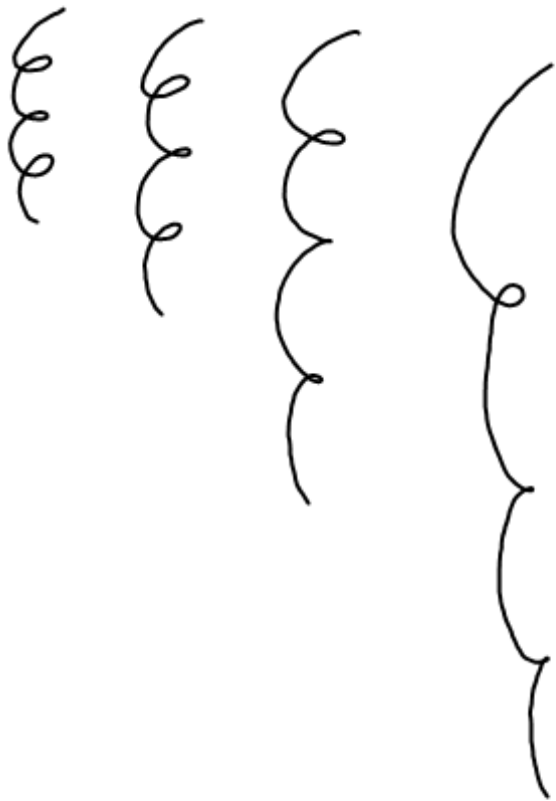
$\approx 7.066$  millions of bushels

$$\text{Work} = \text{force} \cdot \text{distance}$$
$$\text{Newton} \cdot \text{meters} = \text{Joules}$$

Hooke's Law (spring)

$$F = -kx$$

It takes a force of 10 Newtons to stretch a spring 2 meters beyond its natural resting position. How much work is done stretching the spring 4 meters from its natural length?



$$F = -Kx$$

$$F = 5x$$

$$\int_0^4 5x \, dx = 40 \text{ J}$$

$$F(x) = \frac{5}{2}x^2$$

